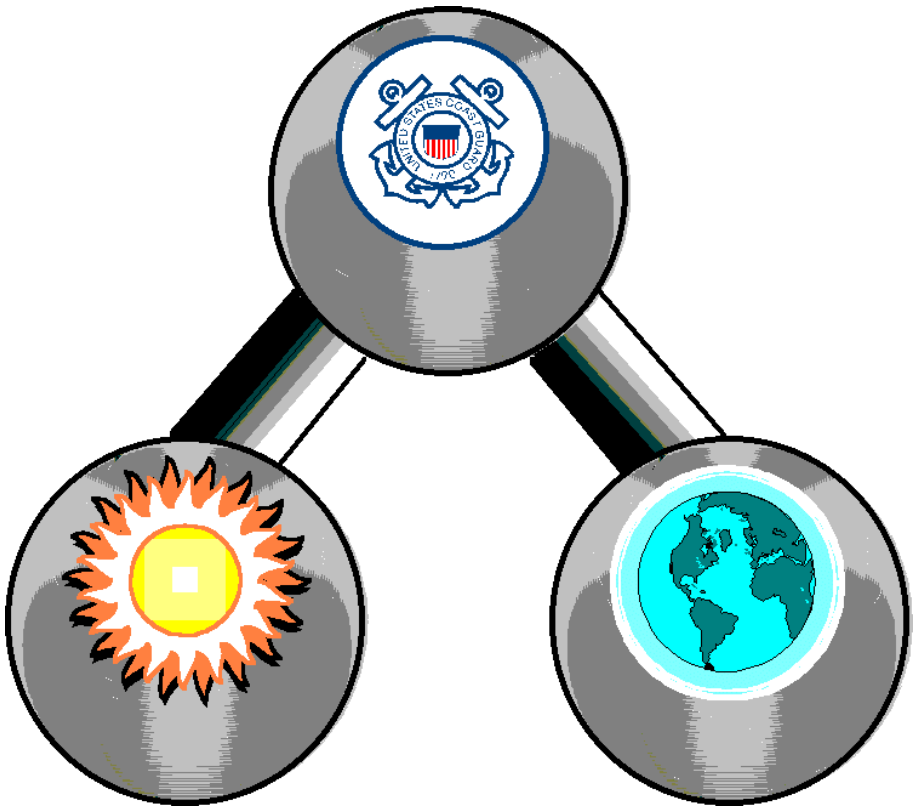
U.S. Department of Transportation
United States Coast Guard

Management Guide for Refrigerants, Coolants and Fire Suppressants



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OVERVIEW

CLEAN AIR ACT

The Clean Air Act, as amended in 1990 (CAA90), defined and established U.S. requirements to protect and improve air quality. The CAA established the national ambient air quality standards (NAAQS) for six pollutants: sulfur dioxide (SO_x), nitrogen oxides (NO_x), particulate matter (PM), carbon monoxide (CO), ozone (O_3), and lead (Pb). For each of these pollutants, "primary" NAAQS were defined to protect public health with an adequate margin of safety, and "secondary" NAAQS were defined to promote public welfare

Title VI of the CAA was developed in response to the Montreal Protocol which called for international agreements to restrict and ban certain ozone depleting substances (ODSs), in order to protect the stratospheric ozone layer. Title VI established a program to phase out ODSs, in order to protect the stratospheric ozone layer from harmful ultraviolet radiation and help preserve ambient air quality and global temperatures.

FEDERAL REQUIREMENTS

Federal requirements (40 CFR Part 82) address the following five concerns raised at Montreal and subsequent conferences on recycling, reduction, and disposal of ODS:

1. *Proper Procedures:* Technicians who service and dispose of air conditioning and refrigeration equipment are required to observe service practices that reduce refrigerant emissions. All air conditioning and refrigeration equipment, except for small appliances and room air conditioners, must be provided with a service aperture that facilitates recovery of the refrigerant. Small appliances require a process stub for easy access during recovery operations.

2. *Proper Technician Certification:* Technicians who service air conditioners and refrigeration equipment are required to obtain certification through an Environmental Protection Agency (EPA) approved testing organization. Refrigerant sales are restricted to certified technicians.

3. *Certification Programs for Equipment:* EPA is required to establish equipment and certification programs. All recycling recovery equipment sold is capable of minimizing ODS emissions.

4. *Leak Repair Rates: R*equire repairs of substantial leaks, based upon annual leak rates, which vary according to two categories of refrigerant equipment.

5. Disposal Requirements: CAA Sec 608 requires the safe removal and disposal of ODSs from appliances and machines prior to disposal. Sec. 608 also requires tracking of reclaimed refrigerants.

COMDTPUB P6280.3 OVERVIEW

This publication provides commanders guidance and policy to comply with national and international initiatives to reduce and eventually eliminate the use of ODSs in the Coast Guard. This guide provides specific guidance for the management of refrigerants, coolants, and fire suppressants, and unit implementation of proper ODS use, recovery, recycling, and disposal procedures. The chapters within this guide discuss the following issues:

Chapter 1	Recovery, recycling, reclamation, and refrigerant use in appliances
Chapter 2	Servicing of motor vehicle, and motor vehicle-like, air conditioner refrigerant.
Chapter 3	Guidance regarding fire extinguishing agents.
Chapter 4	Explanation of the ODS defense reserve, and proper procedures for unit's to access this reserve.

The following appendices are provided as references for the following technical issues:

A	USCG CFC/Halon Supply Process
B	USCG Ozone Depleting Substances CFC/Halon Replacement Timeline
C	Current Listing Of Class I And II ODSs,
D	EPA Registration Offices For Certification Of Recycling And Recovery Equipment
E	Recommended Service Procedure For The Containment Of R-12
F	ODS Management Checklist
G	Comparison Of Technical Requirements For CAA Sections 608 And 609,
H	Resources For Additional Federal And Coast Guard Policy Requirements And Guidance
I	Glossary.

Chapter 1:
RECOVERY, RECYCLING, RECLAMATION, AND REFRIGERANT USE IN APPLIANCES

Scope

This chapter provides guidance to Coast Guard personnel and contractors for: obtaining necessary technician and equipment certifications; servicing, maintaining, repairing, or disposing of appliances that are serviced with ODSs (Refer to Appendix C for Class I and II ODSs as specified in CAA Sec 608).

In this chapter

The following topics are discussed in this chapter:

1.1. TECHNICIAN CERTIFICATION

USCG technicians and service contractors maintaining, servicing, repairing, or disposing of Coast Guard equipment, including appliances, motor vehicle air conditioners (MVAC), and MVAC-Like equipment, must be certified according to equipment size or use (Table 1). Technician certification is not required for individuals removing refrigerant from appliances in the waste stream. Units can obtain information on certification requirements and EPA-approved certification programs by contacting their serving CEU's and the EPA hotline (Appendix H).

Type	Equipment
I	Small appliances (Low- and High-pressure)
II	High-pressure appliances and MVAC/MVAC-Like*****
III	Low-pressure appliances
Universal	**All types of equipment**

***** MVAC/MVAC-Like technicians must have EPA-approved certification.

Table 1. Technician Certification Types Based upon Equipment Size and Use.

1.2. PREVENTING VENTING

Venting or otherwise releasing any Class I or Class II refrigerant into the environment is prohibited. *De minimis* releases associated with good faith attempts to recycle or recover refrigerants are not subject to this prohibition. Releases are *de minimis* only if they occur while following all provisions of this guide and associated technical instructions. Other types of releases permitted under this prohibition include:

- A refrigerant emitted in the course of normal operation, as opposed to during the maintenance, servicing, repair, or disposal such as mechanical purging and leaks; however, the EPA requires the repair of all leaks. (See Leaks below).
- Small releases of refrigerant that result from purging hoses or from connecting or disconnecting hoses to charge or service appliances will not be considered violations of the prohibition on venting. However, recovery and recycling equipment manufactured after November 15, 1993, must be equipped with low-loss fittings.

1.3. EVACUATION/ RECOVERY

It is mandatory to use recovery or recycling equipment properly and in accordance with the manufacturer's instructions. All units that maintain, service, repair, or dispose of appliances, except for small appliances, will have at least one piece of certified, self-contained recovery equipment available. System-dependent equipment will not be used with appliances normally containing more than 15 pounds of refrigerant. The following evacuation guidelines should be followed when opening or disposing of appliances, or small appliances.

1.3.1 Certification of Recovery and Recycling Equipment

Units that maintain, service, repair, or dispose of appliances must certify to the EPA that the unit has acquired certified recovery and recycling equipment (and self-contained equipment for appliances except for small appliances), and is complying with the applicable requirements of the CAA Section 608. This requires recycling and recovery equipment intended for use with air-conditioning, refrigeration equipment, and small appliances to be tested under the Air-conditioning and Refrigeration Institute (ARI) 740-1993 test protocol.

To identify a properly certified piece of equipment, EPA has approved both ARI and Underwriters Laboratories (UL) to certify recycling and recovery equipment. Certified equipment can be identified by a label reading: "This equipment has been certified by ARI/UL to meet EPA's minimum requirements for recycling and/ or recovery equipment intended for use with [appropriate category of appliance--e.g., small appliances, hydrochlorofluorocarbon (HCFC) appliances containing less than 200 pounds of refrigerant, all high-pressure appliances, etc.]." (Refer to Appendix H for how to obtain lists of certified equipment).

For equipment certification, the Commanding Officer will provide the

following information to the appropriate EPA office (Refer to Appendix D):

- Name, address, and county of the unit.
- Location in which the equipment will be used (i.e., shop, housing).
- The equipment's manufacturer's name, date of manufacture, model, and serial number.
- A statement assuring proper use of the equipment for appliance service or disposal, and the accuracy of information provided.

1.3.2 Opening Appliances

Opening Appliances: Technicians who open appliances for maintenance, service, or repair will evacuate the refrigerant from either the entire unit or the part to be serviced (if the latter can be isolated) to a system receiver or a certified recovery or recycling machine. The appliance or part shall be evacuated to the appropriate levels for each equipment type, as specified in Table 2.

Type of Appliance	**Inches of Mercury (Hg) Vacuum* Using Equipment Manufactured:**	
	Before 11/15/1993	**After 11/15/1993**
HCFC- 22 appliance** normally containing **less** than 200 pounds of refrigerant	0	0
HCFC-22 appliance** normally containing 200 LBS or **more** of refrigerant	4	10
Other high-pressure appliance** normally containing **less** than 200 LBS of refrigerant CFC -12, -500, -502, -114	4	10
Other high-pressure appliance** normally containing 200 LBS or **more** of refrigerant CFC-12, -500, -502, -114	4	15
Very High Pressure Appliance (CFC-13, -503)	0	0
Low-Pressure Appliance (CFC-11, HCFC-123) Afloat	25	25 mm Hg absolute
* Relative to standard atmospheric pressure of 29.9" Hg ** Or isolated component of such an appliance		

Table 2. Required Levels of Evacuation for Appliances (Except for Small Appliances, MVACS, and MVAC-Like Appliances)

Exceptions to Evacuation Levels

If evacuation of the appliance to the atmosphere is not to be performed after completion of the maintenance, and the repair is not major, then:

- Evacuate to a pressure no higher than 0 Pounds Per Square Inch Gauge (psig) before it is opened in a high-or very high-pressure appliance; or
- Pressurized to 0 psig before it is opened if it is a low-pressure appliance, without using methods, e.g., nitrogen, that require purging.

If, due to leaks, evacuation to levels in Table 1 are not attainable or would substantially contaminate the refrigerant being recovered:

- Isolate leaking component wherever possible,
- Evacuate non-leaking components to the levels in Table 1

Evacuate leaking components to be opened to the lowest level that can be obtained without substantially contaminating the refrigerant. In no case will this level exceed 0 psig**.**

Recovery While Opening an Appliance:

Technicians opening small appliances for maintenance, service, or repair will recover at least the percent of the refrigerant indicated in the table below, when using recycling and recovery equipment manufactured before or after November 15, 1993. In addition, the small appliance must be evacuated to four inches of mercury vacuum.

Small Appliances Manufactured:			
Before 11/15/93		**After 11/15/93**	
Units Must Recover:		**If Compressor:**	**Units Must Recover:**
80% of Refrigerant		Operating	**90% of Refrigerant**
		Not operating	**80% of Refrigerant**

Table 3. Recovery requirements for small appliances prior to disposal.

1.3.3 Disposing of Appliances

For equipment dismantled on-site prior to disposal, refrigerant must be recovered in accordance with EPA service requirements. For equipment which enters the waste stream with the charge intact (e.g., motor vehicle air conditioners, household refrigerators and freezers, and room air conditioners), the final person in the disposal chain (e.g., a scrap metal recycler or landfill owner) must ensure that refrigerant is recovered from equipment prior to final disposal. However, "upstream" personnel (e.g., Coast Guard unit) are encouraged to cost-effectively remove the refrigerant and provide documentation to the disposal facility operator.

1.3.4 Transferring Equipment

When Transferring Equipment, recovered refrigerant may be returned to the appliance it was removed from or to another Coast Guard-owned appliance without being recycled or reclaimed.

1.4. REPAIRING LEAKS

Commercial refrigeration and industrial process refrigeration equipment must have leaks repaired if the equipment is leaking at such a rate that the loss of refrigerant will exceed 35 percent of the total charge during a 12 month period.

Commercial refrigeration and industrial process refrigeration equipment normally containing more than 50 pounds of refrigerant must have all leaks repaired if the equipment is leaking at such a rate that the loss of refrigerant will exceed 15 percent of the total charge in 12 months.

1.5. RECORD KEEPING

Units disposing of small appliances, and appliances, must maintain copies of signed refrigerant recovery statements obtained from the disposal facility. Records are retained in accordance with COMDTINST M5212.12A (series), the Coast Guard Information Management Manual.

Units that own or lease appliances that normally contain 50 pounds or more of refrigerant will keep servicing records documenting the date and type of service and the quantity of refrigerant added.

Technicians will place a copy of their certification in their training records.

Chapter 2

SERVICING OF MOTOR VEHICLE/MOTOR VEHICLE-LIKE AIR CONDITIONER REFRIGERANT

Scope

This chapter implements the regulations regarding the servicing of motor vehicle air conditioners (MVAC) and motor vehicle-like air conditioners (MVAC-Like). These regulations apply to all persons, including contractors, servicing, maintaining, repairing, or disposing of MVAC and MVAC-Like equipment located on Coast Guard property, or on Coast Guard owned or leased vehicles.

In this chapter

These practices concerning MVAC and MVAC-Like equipment are discussed in this chapter:

2.1. TECHNICIAN CERTIFICATION

Technicians who maintain, service, repair or dispose of MVAC/MVAC-Like air conditioners shall be properly trained and certified by an EPA approved certification program for motor vehicle refrigerant recovery and recycling. Technicians will be certified by this rule, and as a Type II technician (See Chapter 1, Technical Certification). For a current list of approved certifying organizations, call your servicing CEU or the EPA Ozone Hotline (Refer to Appendix H).

2.2. SERVICING PROCEDURES

The recommended MVAC and MVAC-Like servicing procedures contained in Appendix E shall be followed.

2.3. RECOVERY AND RECYCLING, DISPOSING

Recovering and recycling of refrigerant from MVAC and MVAC-Like systems is mandatory. Prior to disassembling and removing air conditioning components, or disposing of components, all refrigerant shall be recovered in accordance with the Refrigerant Recovery Procedures contained in Appendix E.

2.4. MVAC AND MVAC-LIKE RECOVERY AND RECYCLING EQUIPMENT

Technicians repairing or servicing MVAC/MVAC-Like air conditioner/air conditioner components involving the refrigerant system shall properly use equipment certified by the EPA (See Chapter 1, Certification of Recovery and Recycling Equipment). If recovery equipment in use at a unit was purchased prior to September 4, 1991, contact COMDT (G-SEC-3) for information regarding EPA certification.

2.5. RECORD KEEPING

Units disposing of MVAC/MVAC-Like appliances shall maintain copies of signed refrigerant recovery statements obtained from the disposal facility. Technicians shall place a copy of their certification in their training records. These records are retained in accordance with the USCG Information Management Manual.

Chapter 3

FIRE EXTINGUISHING AGENTS

Scope

This chapter provides guidance regarding portable and fixed fire extinguishing systems including, training, testing and purchasing prohibitions.

Fire extinguisher recovery and recycling guidelines are included to assist units in replacing extinguishers with an approved extinguishing agent.

In this chapter

These topics are discussed in this chapter:

3.1. HALON RELEASE PROHIBITION

The intentional release of Halon gas into the atmosphere during servicing and testing is prohibited.

3.2. PURCHASING PROHIBITION

Purchasing Halon 1211 portable fire extinguishers is prohibited, except for mission-critical applications (See Chapter 4, Mission-Critical Use and Applications).

3.3. TRAINING USE PROHIBITION

Halon fire extinguishing agents shall not be used for training.

3.4. REPLACING HALON 1211 PORTABLE FIRE EXTINGUISHERS

Replace Halon 1211 portable fire extinguishers with an approved agent extinguisher on an attrition basis. That is, as a Halon extinguisher fails, or is used, and must be replaced, the extinguisher should be replaced with an extinguisher containing an approved, alternate, extinguishing agent.

Continued on next page

3.5. TOTAL FLOODING SYSTEM DISCHARGE TESTS

Total flooding system discharge tests shall be conducted with a test gas other than Halon. When necessary total flooding system discharge tests using Halon are necessary, units must fully explain reasons and request test approval from COMDT (G-SEC-3).

3.6. REPLACING FIXED AND TOTAL FLOODING SYSTEMS

Replacing all non-mission critical installations of fixed fire extinguishing systems, including total flooding systems, shall be with non-Halon extinguishing agents. This replacement shall be on an attrition basis.

3.7. RECYCLING AND RECOVERY EQUIPMENT EFFICIENCY

When recovering and recycling extinguishing agents, recovery and recycling equipment shall have these levels of efficiencies:

- 97 percent for portable fire extinguishers, and
- 95 percent for total flooding systems.

Chapter 4

OZONE DEPLETING SUBSTANCES DEFENSE RESERVE

Scope

This chapter will discuss mission and non-mission critical uses of ODSs, defense reserve requisitioning of ODSs, authorized users, ordering, stockpiling, handling excesses, and the Significant New Alternatives Program (SNAP).

In this chapter

These required practices are discussed in this chapter:

4.1. MISSION-CRITICAL USE

The Coast Guard will have a reserve of Class I ODSs (Appendix C) to use for mission-critical requirements. This is a use required to protect life, equipment or property, and one for which there is no suitable commercial substitute.

4.2. MISSION-CRITICAL APPLICATIONS

Using ODSs will be permitted for the following Coast Guard mission-critical applications established by G-SEC, G-SEN, and G-SEA:

- Refrigerated ship's stores;
- Shipboard air conditioning systems serving spaces with mission-critical temperature sensitive equipment;
- Shipboard fire suppression systems for engine rooms, machinery spaces, turbine enclosures, flammable liquid and paint lockers;
- Fire suppression aboard aircraft;
- Fire suppression in flight simulators at ATC Mobile; and
- Fire suppression for Ship Control and Navigation Training System (SCANTS) at the U.S. Coast Guard Academy.

4.3. NON-MISSION-CRITICAL USE

For non-mission critical ODS requirements, efforts must be made to satisfy the need using alternate solutions. If alternate solutions are not available, ODS for non mission-critical applications must be obtained through GSA or commercial supply sources.

4.4. DEFENSE RESERVE REQUISITIONS

Authorized Defense Reserve users can requisition ODS for mission-critical applications using procedures in the Supply Policy and Procedures Manual, COMDTINST 4400.19A. Units shall requisition mission critical ODS in accordance with the latest Requisitioning of Ozone Depleting Substances section of the Supply Policy and Procedures Manual (SPPM). The ODS Defense Reserve, managed by the Defense Logistics Agency (DLA), will be accessed only by activities authorized by Commandant (G-SLP). The following procedures apply for requisitions of ODS materials:

Activity	Requisition through:
Afloat	District
Area Afloat and Naval Engineering Support Unit	Cognizant MLC
Air Stations	Aircraft Repair and Support Center

Table 4 Procedures for ODS requisition

4.5. AUTHORIZED DEFENSE RESERVE USERS

Access to the defense reserve is limited to the following authorized users:

Unit or District	OPFAC	DODAAC
CG Academy	01-60100	Z60100
ARSC	40-50100	Z50100
D1	01-71101	Z71101
D5	05-71105	Z71105
D7	07-71107	Z71107
D8	08-71108	Z71108
D9	09-71109	Z71109
D11	11-71111	Z71111
D13	13-71113	Z71113
D14	14-71114	Z71114
D17	17-71117	Z71117
MLCLANT	32-75130	Z75130
MLCPAC	33-75160	Z75160

Table 5. Authorized Defense Reserve Users.

4.6. REQUISITION PROCEDURE

Requisitions of ODS items from the defense reserve will be made according to Military Standard Requisition and Issue Procedures (MILSTRIP), following the guidelines in COMDTINST M4400.19A, Supply Policy and Procedures Manual, Chapter 4, Section J.

4.7. EXCESS ODSs

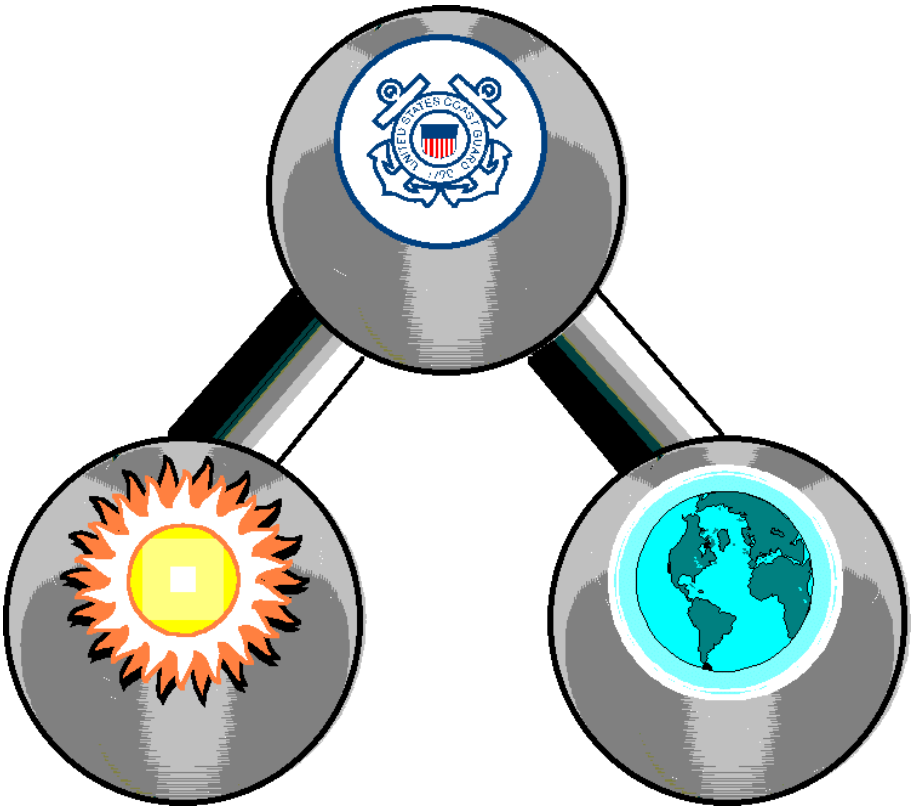
Excess ODSs shall be returned to the defense reserve for credit to the Coast Guard account.

4.8. SIGNIFICANT NEW ALTERNATIVES PROGRAM (SNAP)

The Environmental Protection Agency's (EPA's) Significant New Alternatives Program (SNAP) evaluates alternatives to ODSs, with the intent of replacing ODSs with alternate chemicals, products, or manufacturing processes. Coast Guard units should use alternative products whenever possible.

The EPA publishes lists of acceptable and unacceptable alternatives for replacing Class I and II ODSs. These lists are not provided in this instruction, but are updated quarterly in the Federal Register. Units may contact the environmental specialists at their servicing CEUs for current listings or questions about ODS.

Appendices



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Appendix A: CFC/HALON SUPPLY PROCESS

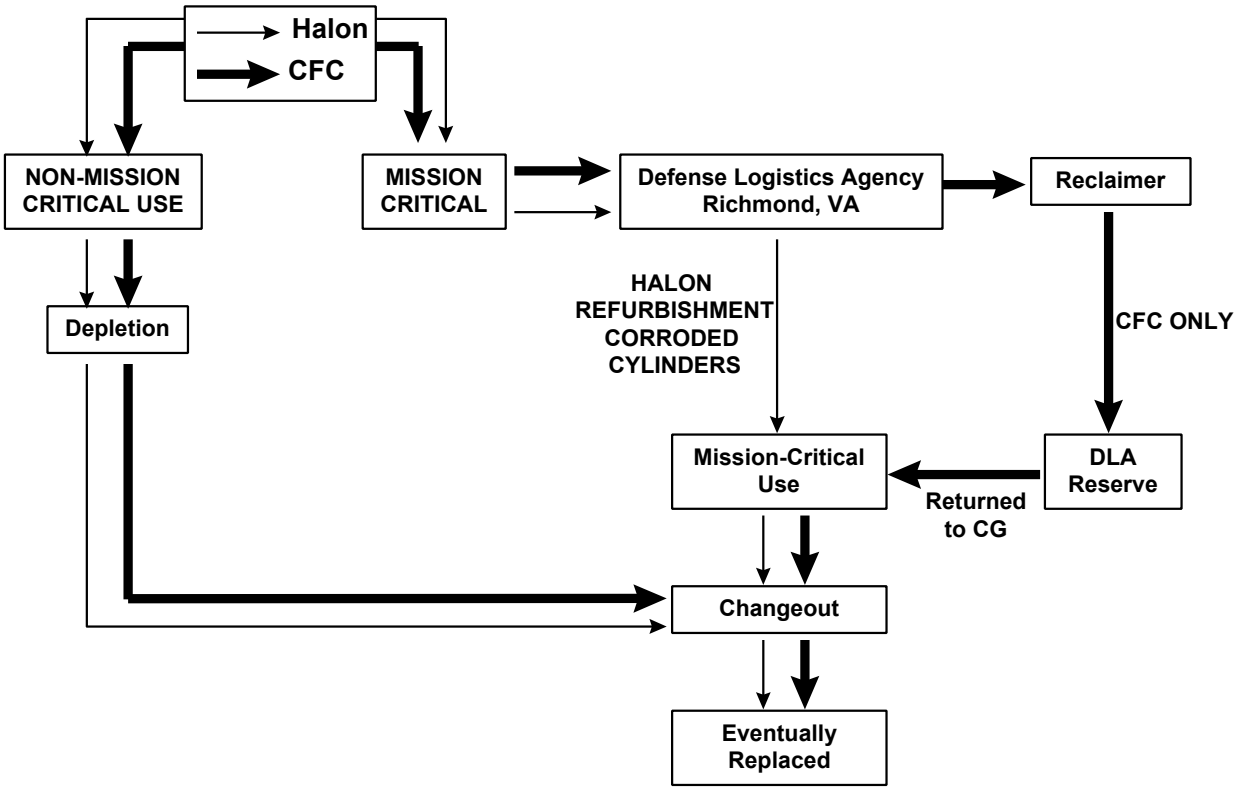

Figure 1 USCG CFC/Halon Supply Process illustrates the process by which the Coast Guard maintains its supply of mission-critical ODSs through the Defense Supply Center in Richmond, VA.

Appendix B: CFC/HALON REPLACEMENT TIMELINE

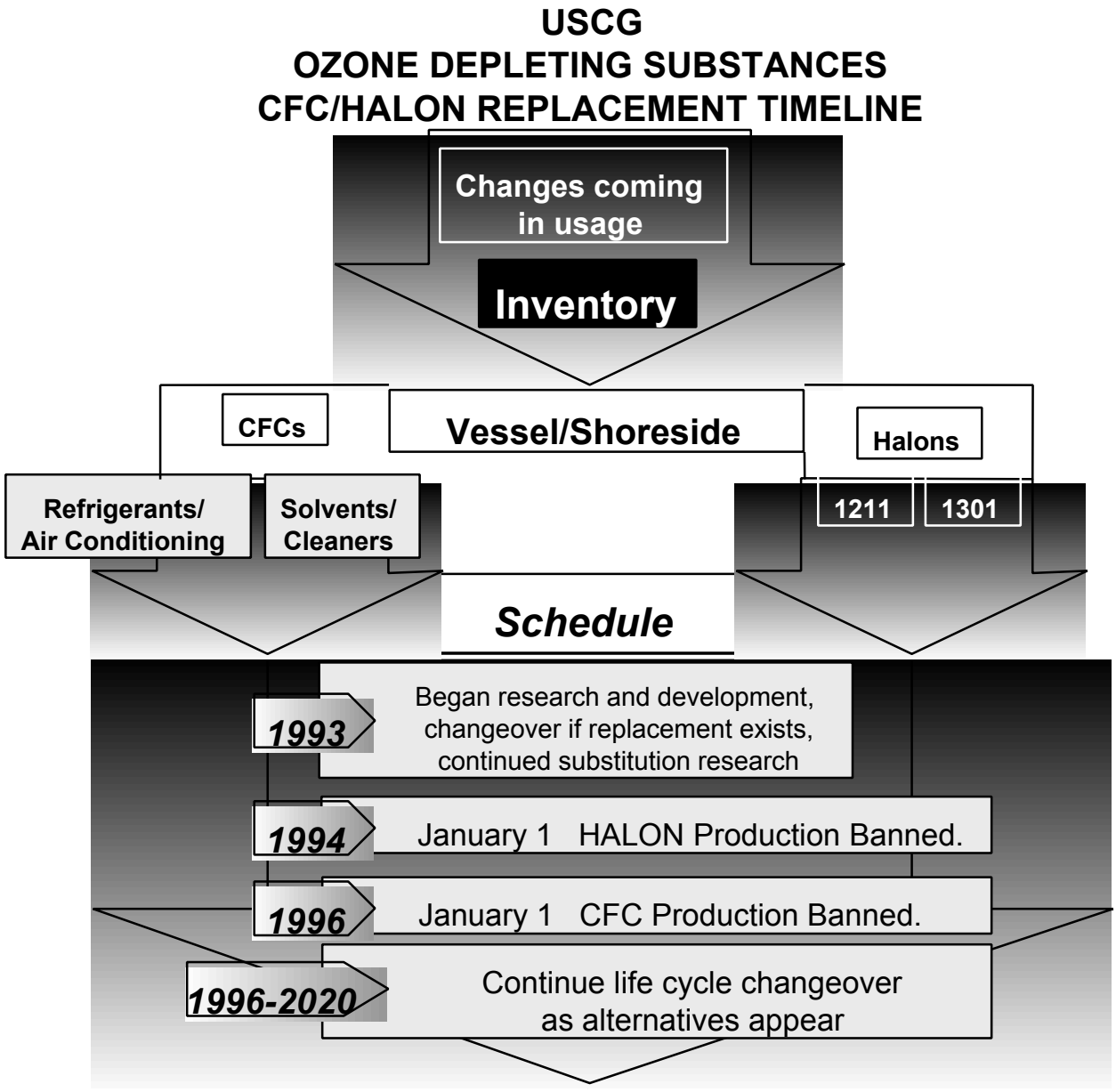

Figure 2. USCG CFC/Halon Replacement Timeline for the eventual replacement of the entire USCG ODS inventory.

Appendix C: OZONE DEPLETING SUBSTANCES

CLASS I OZONE DEPLETING SUBSTANCES	CLASS II OZONE DEPLETING SUBSTANCES
Group I:	hydrochlorofluorocarbon-21 (HCFC-21)
chlorofluorocarbon-11 (CFC-11)	hydrochlorofluorocarbon-22 (HCFC-22)
chlorofluorocarbon-12 (CFC-12)	hydrochlorofluorocarbon-31 (HCFC-31)
chlorofluorocarbon-113 (CFC-113)	hydrochlorofluorocarbon-121 (HCFC-121)
chlorofluorocarbon-114 (CFC-114)	hydrochlorofluorocarbon-122 (HCFC-122)
chlorofluorocarbon-115 (CFC-115)	hydrochlorofluorocarbon-123 (HCFC-123)
	hydrochlorofluorocarbon-124 (HCFC-124)
Group II:	hydrochlorofluorocarbon-131 (HCFC-131)
bromochlorodifluoromethane (Halon 1211)	hydrochlorofluorocarbon-132 (HCFC-132)
bromotrifuoromethane (Halon 1301)	hydrochlorofluorocarbon-133 (HCFC-133)
dibromotetrafluoroethane (Halon 2402)	hydrochlorofluorocarbon-141 (HCFC-141)
dichlorodifluoromethane (Halon 112)	hydrochlorofluorocarbon-142 (HCFC-142)
dibromodifluoromethane (Halon 1202)	hydrochlorofluorocarbon-221 (HCFC-221)
bromochloromethane (Halon 1011)	hydrochlorofluorocarbon-222 (HCFC-222)
bromodifluoromethane (Halon 1201)	hydrochlorofluorocarbon-223 (HCFC-223)
	hydrochlorofluorocarbon-224 (HCFC-224)
Group III:	hydrochlorofluorocarbon-225 (HCFC-225)
chlorofluorocarbon-13 (CFC-13)	hydrochlorofluorocarbon-226 (HCFC-226)
chlorofluorocarbon-111 (CFC-111)	hydrochlorofluorocarbon-231 (HCFC-231)
chlorofluorocarbon-112 (CFC-112)	hydrochlorofluorocarbon-232 (HCFC-232)
chlorofluorocarbon-211 (CFC-211)	hydrochlorofluorocarbon-233 (HCFC-233)
chlorofluorocarbon-212 (CFC-212)	hydrochlorofluorocarbon-234 (HCFC-234)
chlorofluorocarbon-213 (CFC-213)	hydrochlorofluorocarbon-235 (HCFC-235)
chlorofluorocarbon-214 (CFC-214)	hydrochlorofluorocarbon-241 (HCFC-241)
chlorofluorocarbon-215 (CFC-215)	hydrochlorofluorocarbon-242 (HCFC-242)
chlorofluorocarbon-216 (CFC-216)	hydrochlorofluorocarbon-243 (HCFC-243)
chlorofluorocarbon-217 (CFC-217)	hydrochlorofluorocarbon-244 (HCFC-244)
	hydrochlorofluorocarbon-251 (HCFC-251)
Group IV:	hydrochlorofluorocarbon-252 (HCFC-252)
carbon tetrachloride	hydrochlorofluorocarbon-253 (HCFC-253)
	hydrochlorofluorocarbon-261 (HCFC-261)
Group V:	hydrochlorofluorocarbon-262 (HCFC-262)
methyl chloroform	hydrochlorofluorocarbon-271 (HCFC-271)

Appendix D: EPA REGISTRATION OFFICE FOR RECYCLING AND RECOVERY EQUIPMENT

For stations/bases located in:	Send Certification to the Following CAA Sec. 608 Enforcement Contact
Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, or Vermont	EPA Region I, Mail Code OES JFK Federal Building Boston, MA 02203
New York, New Jersey, Puerto Rico, or Virgin Islands	EPA Region II 290 Broadway New York, NY 10007-1886
Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, or West Virginia	EPA Region III, Mail Code 3AT21 841 Chestnut Building Philadelphia, PA 19107
Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, or Tennessee	EPA Region IV AFC Atlanta Federal Building 61 Forsyth St., SW Atlanta, GA 30303-3415
Illinois, Indiana, Michigan, Minnesota, Ohio, or Wisconsin	EPA Region V, Mail Code AT18J 77 W. Jackson Blvd. Chicago, IL 60604-3507
Arkansas, Louisiana, New Mexico, Oklahoma, or Texas	EPA Region VI, Mail Code 6T-EC First Interstate Tower at Fountain Place 1445 Ross Ave., Suite 1200 Dallas, TX 750202-2733
Iowa, Kansas, Missouri, or Nebraska	EPA Region VII, Mail Code ARTX/ARBR 726 Minnesota Ave. Kansas City, KS 66101
Colorado, Idaho, Montana, Nevada, North Dakota, South Dakota, Utah, or Wyoming	EPA Region VIII, Mail Code 8AT-AP 999 18th Street, Suite 500 Denver, CO 80202-2405
American Samoa, Arizona, California, Guam, Hawaii	EPA Region IX, Mail Code A-3 75 Hawthorne Street San Francisco, CA 94105
Alaska, Oregon, or Washington	EPA Region X, Mail Code AT-082 1200 Sixth Ave Seattle, WA 98101

Appendix E: RECOMMENDED SERVICE PROCEDURE FOR THE CONTAINMENT OF R-12

Step	Refrigerant Recovery
1	Connect recovery unit service hoses with shut-off valves within 12 inches of servicing ends, to air conditioning (A/C) service ports
2	Operate recovery equipment as specified by manufacturer.
3	Remove refrigerant from A/C system. Operate recovery unit until system is reduced from a pressure to a vacuum.
4	Shut off recovery unit for at least five minutes to determine no refrigerant remains in the A/C system. If system has pressure, additional recovery operations are needed.
5	Repeat operation until A/C vacuum level is stable for two minutes.
6	Close valves in service lines and remove lines from system.
7	Proceed with service/repair.
8	Ensure that automatic closing valves operate correctly (if applicable).

Step	Service with Manifold Gauge Set
1	Service hoses must have high, low, and center service shut-off valves within 12 inches of service ends.
2	Shut valves prior to hose removal. This will reduce volume of refrigerant in service hose, which would be released into the air.
3	Valves should be closed during all service operations, until connected to A/C system or the charging source to avoid introduction of air and to contain refrigerant rather than vent into the air.
4	When manifold gauge set is disconnected from A/C, or when the center hose is moved to another device which cannot accept refrigerant pressure, first attach gauge set hoses to the reclaiming equipment to recover refrigerant.

Appendix F: ODS MANAGEMENT CHECKLIST

Scope

This checklist can help you in managing your systems and in responding to questions from regulators. If you have any questions regarding Coast Guard policy, contact G-SEC-3 at (202) 267-6214. Should you have questions about compliance issues, contact the Environmental Protection Specialists at your servicing CEU or MLC.

Question	Text Reference	YES	NO
Are all technicians or contractors at your unit, who maintain, service, repair, or dispose of equipment properly certified?	(Pg. 1-1)		
Is your unit evacuating appliances into a certified recovery and recycling equipment?	(Pg. 1-2)		
When servicing, recycling or disposing of an appliance, is your unit evacuating to levels discussed in Chapter 1?	(Pg. 1-4)		
Does your unit know the policies for evacuating before transferring equipment?	(Pg. 1-4)		
Is your unit using all recovery and recycling equipment in accordance with manufacture's instructions?	(Pg. 1-4)		
Does your unit have a leak testing process for positive-pressure equipment, and low-pressure equipment?	(Pg. 1-5)		
Are leaks in your unit's commercial and industrial process refrigeration equipment repaired, if the leak rate exceeds 35 percent of the total charge during a 12 month period?	(Pg. 1-5)		
Are leaks in your unit's commercial and industrial process refrigeration equipment, normally containing more than 50 pounds of refrigerant, repaired, if leak rate exceeds 15 percent of the total charge during a 12 month period?	(Pg. 1-5)		

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Question	Text Reference	YES	NO
Is your unit keeping copies of signed refrigerant recovery statements obtained from the disposal facility, when disposing of small appliances?	(Pg. 1-6)		
Is your unit keeping servicing records documenting the date and type of service and the quantity of refrigerant added to owned or leased appliances that normally contain 50 pounds or more of refrigerant?	(Pg. 1-6)		
Do all of your unit's technicians have a copy of their certification in their training records?	(Pg. 1-6)		
Is your unit keeping all ODS-related records for three years?	(Pg. 1-6)		
Are all MVAC and MVAC technicians (CG personnel and contractors) certified by one of the current EPA approved certifying organizations?	Chapter 2 (Pg. 2-1)		
Is your unit following the recommended MVAC and MVAC-Like servicing procedures, referred to in Chapter 1, contained in Appendix E of this guide?	Appendix E		
Is your unit taking action to avoid the prohibited intentional release of fire extinguishing agents into the atmosphere?	Chapter 3 (Pg. 3-1)		
Is your unit purchasing Halon 1211 portable fire extinguishers only for mission-critical applications (listed in Chapter 4)?	(Pg. 3-1)		
Is your unit in compliance with the policy of not using Halon fire extinguishing agents for training?	(Pg. 3-1)		
Are your unit's total flooding system discharge tests conducted with a test gas other than Halon?	(Pg. 3-2)		
Has your unit replaced non-mission critical fixed fire extinguishing systems, with non-Halon extinguishing agents on an attrition basis?	(Pg. 3-2)		
Does your unit's recovering and recycling equipment meet these levels of efficiencies: 97 percent for portable fire extinguishers, and 95	(Pg. 3-2)		

percent for total flooding systems?			
Question	**Text Reference**	**YES**	**NO**
Is your unit using ODSs only for mission critical applications?	(Pg. 4-1)		
Except for priority 02/03 requirements, is your unit exhausting commercial supplies before requisition of ODSs from the defense reserve?	(Pg. 4-2)		
Is your unit stockpiling ODSs?	(Pg. 4-2)		
Has your unit returned all excess ODSs to the defense reserve for credit to the Coast Guard Account?	(Pg. 4-3)		
Is your unit using alternative products whenever possible?	(Pg. 4-4)		

Appendix G: COMPARISON OF SECTIONS 608 AND 609

Scope

Requirements for handling appliances, motor vehicle air conditioners (MVACs), and MVAC-Like components overlap. The following is a brief comparison of Clean Air Act Sections 608 and 609 which concern Class I and II ODS (Chapter 1) and MVAC and MVAC-Like requirements (Chapter 2), respectively.

Required Practice	ODSs & Appliances CAA Section 608	ODSs, MVAC & MVAC-Like CAA Section 609
Technician Certification	Persons who maintain, service, repair, or dispose of equipment must certify using the following types: Type I/ Small appliances Type II/High or very high-pressure appliances, except small appliances Type III/Low-pressure appliances Universal/Low & high-pressure equipment	Technicians will complete the following for MVAC & MVAC-Like equipment: Training & certification by an EPA program Type II Certification Complete test after taking the certification program
Certification Programs	For a current list of approved certifying organizations, call the EPA Ozone Hotline: (800) 296-1996.	
Evacuation/Servicing	Comply with policies in Chapter 1 of this guide	Follow procedures in Appendix E of this guide
Recovery/Disposal	Equipment made before 11/15/93, recover 80%; after, recover 90% if compressor works, 80% if it does not	Recovered in accordance with detailed Refrigerant Recovery Procedures in Appendix E
Certification of Recovery & Recycling Equipment	Certify with EPA that unit has certified recovery & recycling equipment, complying with ARI 740-1993 test protocol (see Chapter1). MVAC equipment purchased prior to 9/4/1991 shall be evaluated by G-SEC-1 for certification.	
Record Keeping	Keep copies of signed refrigerant recovery statements from the disposal facility. Units that own or lease appliances that normally contain 50 pounds or more of refrigerant will keep servicing records, documenting the date & type of service & the quantity of refrigerant added. Technicians will place a copy of their certification in their training records. Keep all records for three years.	

Appendix H: FEDERAL AND COAST GUARD INFORMATION RESOURCES

Scope

This appendix discusses the Frequently Asked Questions (FAQ) concerning the ODSs. It provides answers from G-SEC to questions most commonly asked by field units. Should personnel have any questions not related to Coast Guard ODS guidance, they are encouraged to contact the EPA by calling the Ozone Protection Hotline at (800) 296-1996 or via the Internet (http://www.epa.gov/).

Where can I obtain ODS material for Mission Critical Applications?

The defense reserve in Richmond. Follow guidelines in Chapter 4 and send form to the following address:

Defense Supply Center
8000 Jefferson Davis Highway
Richmond, VA 23297-5000

Will there be CGHQ guidance on this in the future?

This manual promulgates initial guidance regarding ODS. Coast Guard Headquarters will update the field of any changes, specifying responsibilities, liabilities and actions.

EPA Hotline Certified Equipment Lists from ARI and UL

(800-296-1996)
Contact the following EPA-approved service providers for lists of certified recovery and recycling equipment.

Air-conditioning and Refrigeration Institute (ARI)	703-524-8800
Underwriters Laboratories (UL)	708-272-8800 x 42371

Appendix I: GLOSSARY

Appliance	Any device which contains and uses a Class I or II substances as refrigerant, and which is used for household or commercial purposes, including any air conditioner, refrigerator, chiller, or freezer.
Certified Refrigerant Recovery or Recycling Equipment	Equipment certified by an approved equipment testing organization to meet the standards established by the EPA.
Commercial Refrigeration	Refrigeration appliances utilized in the retail food and cold storage warehouse sectors. Retail food includes the refrigeration equipment found in commissaries, exchanges, mini-marts, galleys, cafeterias, and other food service establishments. Cold storage includes the equipment used to store meat, produce, dairy products, and other perishable goods. All of the equipment contains large refrigerant charges, typically over 75 pounds.
Disposal	The process leading to and including: the disassembly of any appliance for discharge, deposit, dumping or placing of any discarded appliance into or on any land or water; or the disassembly of any appliance for reuse of its component parts.
Halon	Used as a fire extinguishing agents in built-in and portable.
High-pressure Appliance	An appliance that uses a refrigerant with a boiling point between -50 and 10 degrees Centigrade at atmospheric pressure (29.9 inches of mercury). This definition includes but is not limited to appliances using refrigerants -12, -22, -114, -500, or -502.
Low-loss Fitting	Any device that is intended to establish a connection between hoses, appliances, or recovery or recycling machines and that is designed to close automatically or to be closed manually when disconnected, minimizing the release of refrigerant from hoses, appliances, and recovery of recycling machines.
Low-Pressure Appliance	An appliance that uses a refrigerant with a boiling point above 10 degrees Centigrade at atmospheric pressure (29.9 inches of mercury). This definition includes but is not limited to equipment utilizing refrigerants -11, -113, and -123.

Continued on next page

Major Maintenance, Service, or Repair	Any maintenance, service, or repair involving the removal of any or all of the following appliance components: compressor, condenser, evaporator, or auxiliary heat exchanger coil.
Mission-Critical Use	A use required to protect life, equipment or property, and one for which no suitable ODS substitute is available.
Motor Vehicle Air Conditioner (MVAC)	Any appliance that is a motor vehicle air conditioner as defined in 40 CFR Part 82 Subpart B.
MVAC-Like Appliance	Mechanical vapor compression, open-drive compressors appliances used to cool the driver's or passenger's compartment of an non-road motor vehicle. These air conditioners include many systems used in construction equipment, industrial equipment, farm vehicles, boats, and aircraft. This definition is not intended to cover appliances using HCFC-22 refrigerant.
Opening an Appliance	Any service, maintenance, or repair on an appliance that could be reasonably be expected to release refrigerant from the appliance to the atmosphere unless the refrigerant was previously recovered from the appliance.
Stockpiling	Ordering ODSs beyond reasonable need.

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COMMANDANT PUBLICATION P6280.3

Subj: MANAGEMENT GUIDE FOR REFRIGERANTS, COOLANTS, AND FIRE SUPPRESSANTS

Ref: (a) 40 Code of Federal Regulations (CFR), Part 82, Protection of Stratospheric Ozone

1. PURPOSE. The purpose of this publication is to assist unit commanders in managing refrigerants, coolants, and fire suppressants, and to disseminate general Coast Guard policy on using, reducing, eliminating, and disposing of Ozone Depleting Substances (ODSs). In addition, this establishes a method for the Coast Guard to transition away from the use of Class I and Class II ozone depleting substances.

2. ACTION. Area and district commanders, commanders of maintenance and logistics commands, commanding officers of headquarters units, assistant commandants for directorates, Chief Counsel, and special staff officers at Headquarters shall ensure that their unit commanders are aware of the contents of this publication.

3. DIRECTIVES AFFECTED. None.

4. DISCUSSION. The stratospheric ozone layer protects the earth from the penetration of harmful ultraviolet radiation. An international consensus has been developed that certain halocarbons can transport chlorine and bromine to the stratosphere and contribute to ozone layer depletion. To the extent that ozone depletion occurs, ultraviolet radiation reaching the surface increases, resulting in potential health effects and environmental harm. The Montreal Protocol banned production of Halons on January 1, 1994 and production of chlorofluorocarbons (CFCs) on January 1, 1996. Enabling legislation identified national goals to replace ODSs with more environmentally safe materials. The Coast Guard will

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fully comply with the requirements of the Clean Air Act and eliminate the use of, and dependence upon, Class I ODSs whenever possible, and reduce the use, reliance and release to the atmosphere of other ODSs.

5. SCOPE. This publication is a "desktop manual" that provides general information and guidance for all Coast Guard units on managing refrigerants, coolants, fire suppressants, and to transition away from the use of Class I ODSs and Class II ODS materials.

6. RESPONSIBILITIES. This publication provides general information and guidance for Commanding Officers (COs) and Officers in Charge (OIC), Maintenance and Logistics Commands (MLCs), Civil Engineering Units (CEUs), and Headquarters units.

a. Commandant (G-SEC) shall:

(1) Provide necessary overall policy and compliance procedures for ODS;

(2) Evaluate Department of Defense (DOD) and other federal agency policies for phasing out ODSs; and

(3) In conjunction with other offices in Commandant G-S, develop necessary instructions and guidance for USCG-wide compliance with ODS restrictions and prohibitions.

b. Commandant (G-SLP) shall:

(1) Provide instruction to units for requisition and return procedures for mission-critical ODS applications;

(2) Ensure that ODS resources are reclaimed, recycled, and reused;

(3) As Senior Acquisition Official, minimize requisitioning of ODS Class I materials; and

(4) Provide a list of approved National Stock Number (NSN) alternatives to affected field units as substitutes and replacements for Class I ODS as discovered and approved for acquisition from Navy and other federal agencies.

c. Commandant (G-CPM) shall:

(1) Ensure that all new solicitations and contracts will contain the appropriate Federal Acquisition Regulation (FAR) clauses pertaining to ODSs;

(2) Encourage the substitution of safe alternatives to ODSs in specifications to the maximum extent practicable.

d. MLCs shall:

(1) Provide all necessary coordination and support for successful implementation of this publication, and follow through per CGHQ guidance;

(2) Communicate with other federal agencies involved in ODS changeout, maintain contact with industrial sectors that manufacture substitutes and provide ODS reduction services, and communicate with the private sector to support the ODS changeout program; and

(3) Provide legal guidance and interpretation to units in their Area of Responsibility (AOR) on relevant laws and Executive Orders.

e. CEUs shall:

(1) Assist units within their area of responsibility and inform them of specific policies for using and disposing of ODSs;

(2) Ensure a consistent changeover from ODS systems to non-ODS systems by all affected units. Coordinate changeout practices with ODS return practices to the Defense Logistics Agency (DLA) for mission-critical uses; and

(3) Distribute cost and technical information to units within their area of responsibility.

f. COs and OICs of affected units shall:

(1) Ensure compliance with the law and relevant provisions of this management guide for refrigerants, coolants, and fire suppressants;

(2) Prohibit stockpiling of Class I ODSs for use on USCG property;

(3) Inform appropriate maintenance support manager (CEU, MLC, Headquarters command) of changes in ODS usage and inventory, and follow Commandant (G-SLP) directives for return of ODSs to the Defense Logistics Agency (DLA) for mission critical uses;

(4) Review provisions of existing unit contracts requiring use of ODS and ensure appropriate consideration is made for changing to non-ODS materials; and

(5) Budget to meet ODS changeout requirements.

Enclosure(s)

K.Malmberg/comdt pub OZONE DEPLETE SUBSTANCES/ 3-30-99

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